AFCTN Test Report 94-145

AFCTB-ID 94-123

TMSS Parsing Test

MIL-M-7700E, Flight Manual

Document Type Definition

RJO Corporation

Quick Short Test Report

13 October 1994

19960606 122

TMSS Parsing Test

MIL-M-7700E, Flight Manual

Document Type Definition

For:

RJO Corporation

Quick Short Test Report

13 October 1994

Prepared By
Air Force CALS Test Bed
Wright-Patterson AFB, OH 45433

AFCTB Contact
Gary Lammers
(513) 427-2295

AFCTN Contact
Mel Lammers
(513) 427-2295

DISCLAIMER

Air Force CALS Test Bed

Notification of Test Results

13 October 1994

This notice documents the results of an Air Force CALS Test Bed (AFCTB) Quick Short Test Report (QSTR) evaluation of data submitted by:

RJO Corporation

Identified as follows:

Title:	**TMSS Parsing Test MIL-M-7700E Flight Manual DTD**
Program:	**N/A**
Program Office:	**N/A**
Contract No.:	**N/A**
QSTR No.:	**AFCTB-ID 94-123**

Received on the following media: **3.5" Diskette**

The results of the QSTR evaluation are as follows:

MIL-STD-1840A Standard	**N/A**
MIL-STD-1840A Media Format:	**N/A**
MIL-D-28000A IGES:	**N/A**
MIL-M-28001B SGML:	**PASS**
MIL-R-28002A Raster:	**N/A**
MIL-D-28003 CGM:	**N/A**

Formal results with associated disclaimer are documented and available from the AFCTB.

Contents

1. Introduction

1.1 Background

The Department of Defense (DoD) Air Force Continuous Acquisition and Life-cycle Support (CALS) Test Network (AFCTN) is conducting tests of the military standard for the Automated Interchange of Technical Information, MIL-STD-1840A, and its companion suite of military specifications. The AFCTN is a DoD sponsored confederation of voluntary participants from industry and government managed by the Electronic Systems Center (ESC).

The primary objective of the AFCTN is to evaluate the effectiveness of the CALS standards for technical data interchange and to demonstrate the technical capabilities and operational suitability of those standards. Two general categories of tests are performed to evaluate the standards; formal and informal.

Formal tests are large and comprehensive, which follow a written test plan, require specific authorization from the DoD, and may take months to prepare, execute, and report.

Informal tests are quick and short, used by the AFCTN technical staff, to broaden the testing base. They include representative samples of the many systems and applications used by AFCTN participants. They also allow the AFCTN staff to gain feedback from many industry and government interpretations of the standards, to increase the base of participation in the CALS initiative, and respond to the many requests for help that come from participants. Participants take part voluntarily, benefit by receiving an evaluation of their latest implementation (interpretation) of the standards, interact with the AFCTN technical staff, gain experience using the standards, and develop increased confidence in them. The results of informal tests are reported in Quick Short Test Reports (QSTRs) that briefly summarize the standard(s) tested, the hardware and software used, the nature of the test, and the results.

1.2 Purpose

The purpose of this informal test is to analyze Air Force
Document Type Definitions (DTDs) for Standard Generalized
Markup Language (SGML) syntax, using several commercial and
public domain SGML parsers.

2. Test Parameters

Test Plan:	AFCTB 94-123

**Date of
Evaluation:**   13 October 1994

Evaluator: George Elwood
                          Air Force CALS Test Bed
                          DET 2 HQ ESC/AV-2P
                          4027 Colonel Glenn Hwy
                          Suite 300
                          Dayton   OH   45431-1672

**Data
Originator:**   Roger Huckaby
                          RJO
                          4027 Colonel Glenn Hwy
                          Suite 200
                          Dayton   OH   45431-1672

**Data
Description:**   Technical Manual Test
                              3 DTDs

**Data
Source System:**

                 Text/SGML
                          HARDWARE
                                  Unknown
                          SOFTWARE
                                  Unknown

Evaluation Tools Used:

                 MIL-M-28001 (SGML)
                          PC 486/50
                                  Exoterica *XGMLNormalizer v1.2e3.2*
                                  Exoterica *Validator v2.0 ex1*
                                  Public Domain *sgmls*

**Standards
Tested:**   MIL-M-28001B

3. 1840A Analysis

3.1 External Packaging

The 3.5" diskette was hand delivered to the Air Force CALS Test Bed (AFCTB). It was not enclosed in any type of container.

The files received by the AFCTB were not MIL-STD-1840A. The files were not named per the standard conventions, as the stated purpose of the evaluation was the basic data structure.

4. SGML Analysis

4.1 D700EA0.ORG

The AFCTB has several parsers available for evaluating sub-mitted DTD and text files. These tools are not used to generate a pass/fail but to report how commercially avail-able software can handle the files. These products are used in the development of technical publications and are good indicators of usability. The use of these products is not an endorsement nor an indication of CALS capability. All operations were performed using the default settings unless specified in the report. Changes to DTD or text files re-quired by each system are not documented in the report.

The goal was to configure the DTD under analysis as it would normally be used. However, for this analysis it was neces-sary to modify the DTD adding the "DOCTYPE doc [" statement to the start and the companion "]>" to the end of the DTD under evaluation, as stated in the comments of the DTD. If the parser did not support a formal file pointing to the location of the ISO character sets, this was added.

The DTD under evaluation, MIL-M-7700E, Flight Manual, was a stand alone DTD. The DTD was not changed except to insert the location of the ISO character set files in the D700EA0.ORG DTD. During the inspection of the DTD, it was noted that several options could be selected depending on the type flight manual required. These options were defined in marked section of the DTD.

The text and DTD files were evaluated using the Exoterica *Validator exl* parser. No errors were reported.

The text and DTD files were tested using the Exoterica *XGMLNormalizer* parser. No errors or warnings were re-ported.

The text and DTD files were evaluated using the Public Domain *sgmls* parser. This utility was utilized to determine the capacity statement requirements. The following warning was issued by this utility:

sgmls: Warning at \ws\94123a.dtd, line 1123 in declaration parameter O:
    End-tag minimization should be "O" for element with CONREF
    attribute

```
<!ELEMENT gendiag     - - (figure | foldout) >
<!ATTLIST gendiag     xref IDREF #CONREF >
```

No errors were reported by any of the parsers used in the AFCTB.

4.2 D700EB0.ORG

The DTD under evaluation, MIL-M-7700E, Flight Manual Supplement, required the basic MIL-M-7700E DTD. The DTD was not changed except to insert the location of the basic DTD and the ISO character set files in the D700EA0.ORG DTD.

D700EB0.ORG --> D700EA0.ORG

The same comments made about the basic DTD and concrete syntax were legal for this DTD, as it called the basic DTD.

The text and DTD files were evaluated using the Exoterica *Validator exl* parser. No errors were reported. The parser reported two type warnings. The first type was a parameter entity name declared more than once.

```
<!-- **Warning** in "i:\94123\94123a.dtd" (entity "%m7700e-a"), line
    119, used in "\xgml\94123b.dtd", line 117:
  A parameter entity name has been declared more than once.
  The entity is "%idinf".
  <!ENTITY % idinf    "(tmidno+, pretmidno*, doctype?, prtitle, subti-
  tle?, (m
            ~~~~~
-->
```

The second type warning was for elements exluded from the content model.

```
<!-- **Warning** in "\xgml\94123b.dtd", line 135:
  An element is not allowed in the document instance because it does
  not appear in any accessible content model or it is completely
  excluded.
  The element is "ABBRSECT".
-->
```

The text and DTD files were tested using the Exoterica *XGMLNormalizer* parser. No errors or warnings were reported.

The text and DTD files were evaluated using the Public Domain *sgmls* parser. This utility was used to determine the capacity statement requirements. Three duplicate entries and one end tag warning were issued by this utility.

sgmls: Warning at \ws\94123a.dtd, line 1123 in declaration parameter 0:
End-tag minimization should be "O" for element with CONREF attribute

```
<!ELEMENT gendiag     - -  (figure | foldout) >
<!ATTLIST gendiag     xref IDREF #CONREF >
```

4.3 D700EC0.ORG

The DTD under evaluation, MIL-M-7700E, Flight Manual Check-list (D700EC0.ORG), was a stand alone DTD. The DTD was not changed except to insert the location of the ISO character set files in the D700EC0.ORG DTD. During the inspection of the DTD, it was noted that several options could be selected depending on the type flight manual required. These options were defined in marked sections of the DTD.

The text and DTD files were evaluated using the Exoterica *Validator exl* parser. Three types of warnings were issued by this utility. The first type warning was a parameter entity name declared more than once.

```
<!-- **Warning** in "\xgml\94123c.dtd", line 107:
   A parameter entity name has been declared more than once.
   The entity is "%bodyele".
   <!ENTITY % bodyele  "(front, suppnum, (((cldescription & clnormproc &
   ̂ ̂ ̂ ̂ ̂ ̂ ̂
-->
```

The second type warning was for elements excluded from the content model.

```
<!-- **Warning** in "\xgml\94123c.dtd", line 954:
   An element is not allowed in the document instance because it does
   not appear in any accessible content model or it is completely
   excluded.
   The element is "CHGHISTDATE".
-->
```

The third type warning was for an undefined element.

```
<!-- **Warning** in "\xgml\94123c.dtd", line 954:
   An element name specified in a USEMAP declaration, ATTLIST declara-
   tion or content model is not defined by an ELEMENT declaration.
   The element name is "EMERPROCNOT".
```

The text and DTD files were tested using the Exoterica
XGMLNormalizer parser. One warning was issued for an unde-
fined element.

The text and DTD files were evaluated using the Public
Domain *sgmls* parser. Two warnings were issued by this
utility; an undefined element and a duplicate definition.

5. Conclusions and Recommendations

The DTD, MIL-M-7700E (D700EA0.ORG) was successfully parsed, using the utilities available within the AFCTB, without a reported error.

The DTD, MIL-M-7700E (D700EB0.ORG) was successfully parsed, using the utilities available within the AFCTB, without a reported error.

The DTD, MIL-M-7700E (D700EC0.ORG) was successfully parsed, using the utilities available within the AFCTB, without a reported error. However, all parsers reported warnings for an undefined element.

6. Appendix A - Detailed SGML Analysis

6.1   MIL-M-7700E - Basic

6.1.1   Exoterica Validator Parser

```
<!-- **Error** in "\xgml\94123a.dtd", line 840:
    The number of names in a name group, name token group or content model must
    not exceed the GRPCNT quantity limit.
    The number of names or tokens exceeds 32.
    comm & light & oxygen? & airdatacomp? &
                                           ^

-->
<!-- **Error** in "\xgml\94123a.dtd", line 1627:
    The number of names in a name group, name token group or content model must
    not exceed the GRPCNT quantity limit.
    The number of names or tokens exceeds 32.
    missappr & touchgo & aftland & hotrefuel? &
                                              ^

-->
<!-- **Error** in "\xgml\94123a.dtd", line 1917:
    The number of names in a name group, name token group or content model must
    not exceed the GRPCNT quantity limit.
    The number of names or tokens exceeds 32.
    oxygen? & airdatacomp? & armweap? &
                                      ^

-->
<!-- **Error** in "\xgml\94123a.dtd", line 1948:
    The number of names in a name group, name token group or content model must
    not exceed the GRPCNT quantity limit.
    The number of names or tokens exceeds 32.
    touchgo? & aftland? & hotrefuel? & engshut?
                                              ^

-->
<!-- Capacity points/limits:
        TOTALCAP =437257/450000
        ENTCAP   =12672/200000
        ENTCHCAP =14289/70000
        ELEMCAP  =13024/70000
        GRPCAP   =136640/150000
        EXGRPCAP =5568/70000
        EXNMCAP  =10464/70000
        ATTCAP   =208800/220000
        ATTCHCAP =4453/70000
        AVGRPCAP =30944/70000
```

```
     NOTCAP    =128/70000
     NOTCHCAP  =275/70000
     IDCAP     =0/70000
     IDREFCAP  =0/70000
     MAPCAP    =0/70000
     LKSETCAP  =0/70000
     LKNMCAP   =0/70000
-->
```

Log file after setting GRPCNT to 60.

```
<!-- Capacity points/limits:
     TOTALCAP  =437146/500000
     ENTCAP    =12672/200000
     ENTCHCAP  =14178/70000
     ELEMCAP   =13024/70000
     GRPCAP    =136640/150000
     EXGRPCAP  =5568/70000
     EXNMCAP   =10464/70000
     ATTCAP    =208800/220000
     ATTCHCAP  =4453/70000
     AVGRPCAP  =30944/70000
     NOTCAP    =128/70000
     NOTCHCAP  =275/70000
     IDCAP     =0/70000
     IDREFCAP  =0/70000
     MAPCAP    =0/70000
     LKSETCAP  =0/70000
     LKNMCAP   =0/70000
-->
```

6.1.2 Exoterica XGMLNormalizer Parser

```
C:\XGML\XGMLNORM.EXE --
Warning on line 1219 in file 94123a.dtd:
A capacity in the current concrete syntax has been exceeded.
The total capacity limit for the document has been exceeded.

C:\XGML\XGMLNORM.EXE --
Warning on line 1392 in file 94123a.dtd:
A capacity in the current concrete syntax has been exceeded.
Too many content model tokens.

C:\XGML\XGMLNORM.EXE --
Warning on line 2200 in file 94123a.dtd:
A capacity in the current concrete syntax has been exceeded.
Too many attributes defined.

No errors reported after the capacities were increased.
```

6.1.3 Public Domain sgmls Log

```
sgmls: Warning at \ws\94123a.dtd, line 1123 in declaration parameter 0:
      End-tag minimization should be "O" for element with CONREF attribute
sgmls: SGML error:
      Capacity limit TOTALCAP exceeded by 237201 points
sgmls: SGML error:
      Capacity limit ATTCAP exceeded by 8800 points

TOTALCAP 437201
ENTCAP 12672
ENTCHCAP 14233
ELEMCAP 13024
GRPCAP 136640
EXGRPCAP 5568
EXNMCAP 10464
ATTCAP 208800
ATTCHCAP 4453
AVGRPCAP 30944
NOTCAP 128
NOTCHCAP 275
IDCAP 0
IDREFCAP 0
MAPCAP 0
LKSETCAP 0
LKNMCAP 0
```

6.2 MIL-M-7700E - Appendix A

6.2.1 Exoterica Validator Parser

```
<!-- **Warning** in "i:\94123\94123a.dtd" (entity "%m7700e-a"), line 119,
    used in "\xgml\94123b.dtd", line 117:
  A parameter entity name has been declared more than once.
  The entity is "%idinf".
  <!ENTITY % idinf    "(tmidno+, pretmidno*, doctype?, prtitle, subtitle?, (m
             ^^^^^
-->
<!-- **Warning** in "i:\94123\94123a.dtd" (entity "%m7700e-a"), line 162,
    used in "\xgml\94123b.dtd", line 117:
  A parameter entity name has been declared more than once.
  The entity is "%docatt".
  <!ENTITY % docatt
             ^^^^^^
-->
<!-- **Warning** in "i:\94123\94123a.dtd" (entity "%m7700e-a"), line 254,
    used in "\xgml\94123b.dtd", line 117:
  A parameter entity name has been declared more than once.
  The entity is "%text".
  <!ENTITY % text    "(#PCDATA | change | ftnref | xref | indxflag | verbatim
             ^^^^
-->
<!-- **Warning** in "\xgml\94123b.dtd", line 135:
  An element is not allowed in the document instance because it does not
  appear in any accessible content model or it is completely excluded.
  The element is "ABBRSECT".
-->
  The element is "ABCHARENGOUT".
  The element is "ABCHARROLL".
  The element is "ABCHARUNI".
  The element is "ABCHARUNU".
```

<<<<< PART OF LOG FILE REMOVED HERE >>>>>

```
  The element is "WINDDEF".
  The element is "WINDSHEAR".
  The element is "WINDSHLD".
  The element is "WINDTBL".
  The element is "WOOPERTBL".
  The element is "XREF".
<!-- Capacity points/limits:
    TOTALCAP  =432883/500000
    ENTCAP    =12800/200000
```

```
       ENTCHCAP =15419/70000
       ELEMCAP  =13184/70000
       GRPCAP   =130304/150000
       EXGRPCAP =5600/70000
       EXNMCAP  =10528/70000
       ATTCAP   =208896/225000
       ATTCHCAP =4453/70000
       AVGRPCAP =31296/70000
       NOTCAP   =128/70000
       NOTCHCAP =275/70000
       IDCAP    =0/70000
       IDREFCAP =0/70000
       MAPCAP   =0/70000
       LKSETCAP =0/70000
       LKNMCAP  =0/70000
--><!-- 0 errors and 331 warnings reported. -->
```

6.2.2 Exoterica XGMLNormalizer Parser

No reported errors or warnings.

6.2.3 Public Domain sgmls Log

```
sgmls: In file included at \ws\94123b.dtd, line 43:
       Warning at c:\ws\94123.dtd, line 121 in declaration parameter 4:
       Duplicate specification occurred for "%idinf"; duplicate ignored
sgmls: In file included at \ws\94123b.dtd, line 43:
       Warning at c:\ws\94123.dtd, line 166 in declaration parameter 4:
       Duplicate specification occurred for "%docatt"; duplicate ignored
sgmls: In file included at \ws\94123b.dtd, line 43:
       Warning at c:\ws\94123.dtd, line 256 in declaration parameter 4:
       Duplicate specification occurred for "%text"; duplicate ignored
sgmls: In file included at \ws\94123b.dtd, line 43:
       Warning at c:\ws\94123.dtd, line 1121 in declaration parameter 0:
       End-tag minimization should be "O" for element with CONREF attribute
sgmls: SGML error:
       Capacity limit TOTALCAP exceeded by 231851 points
sgmls: SGML error:
       Capacity limit ATTCAP exceeded by 8896 points

TOTALCAP 431851
ENTCAP 12800
ENTCHCAP 14387
ELEMCAP 13184
GRPCAP 130304
EXGRPCAP 5600
EXNMCAP 10528
ATTCAP 208896
ATTCHCAP 4453
AVGRPCAP 31296
NOTCAP 128
NOTCHCAP 275
IDCAP 0
IDREFCAP 0
MAPCAP 0
LKSETCAP 0
LKNMCAP 0
```

6.3   MIL-M-7700E - Appendix C

6.3.1   Exoterica Validator Parser

```
<!-- **Warning** in "\xgml\94123c.dtd", line 107:
   A parameter entity name has been declared more than once.
   The entity is "%bodyele".
   <!ENTITY % bodyele  "(front, suppnum, (((cldescription & clnormproc &
                        ~~~~~~~~
-->
<!-- **Warning** in "\xgml\94123c.dtd", line 954:
   An element is not allowed in the document instance because it does not
   appear in any accessible content model or it is completely excluded.
   The element is "CHGHISTDATE".
-->
<!-- **Warning** in "\xgml\94123c.dtd", line 954:
   An element name specified in a USEMAP declaration, ATTLIST declaration or
   content model is not defined by an ELEMENT declaration.
   The element name is "EMERPROCNOT".
-->
<!-- **Warning** in "\xgml\94123c.dtd", line 954:
   An element is not allowed in the document instance because it does not
   appear in any accessible content model or it is completely excluded.
   The element is "LEP".
-->
<!-- **Warning** in "\xgml\94123c.dtd", line 954:
   An element is not allowed in the document instance because it does not
   appear in any accessible content model or it is completely excluded.
   The element is "REPL".
-->
<!-- **Warning** in "\xgml\94123c.dtd", line 954:
   An element is not allowed in the document instance because it does not
   appear in any accessible content model or it is completely excluded.
   The element is "SUPPNUM".
-->
<!-- Capacity points/limits:
       TOTALCAP =100623/200000
       ENTCAP   =12256/200000
       ENTCHCAP =12738/70000
       ELEMCAP  =4320/70000
       GRPCAP   =29728/70000
       EXGRPCAP =1632/70000
       EXNMCAP  =3712/70000
       ATTCAP   =24928/200000
       ATTCHCAP =602/70000
       AVGRPCAP =10304/70000
```

```
    NOTCAP    =128/70000
    NOTCHCAP  =275/70000
    IDCAP     =0/70000
    IDREFCAP  =0/70000
    MAPCAP    =0/70000
    LKSETCAP  =0/70000
    LKNMCAP   =0/70000
-->
```

6.3.2 Exoterica XGMLNormalizer Parser

```
C:\XGML\XGMLNORM.EXE --
Warning on line 954 in file 94123c.dtd:
An undeclared element name was used in a content model.
The element is 'EMERPROCNOT'.
```

6.3.3 Public Domain sgmls Log

```
sgmls: Warning at \ws\94123c.dtd, line 36 in declaration parameter 4:
       Duplicate specification occurred for "%bodyele"; duplicate ignored
sgmls: Warning at \ws\94123c.dtd, line 881 at record end:
       Element "EMERPROCNOT" used in DTD but not defined

TOTALCAP 99779
ENTCAP 12256
ENTCHCAP 11894
ELEMCAP 4320
GRPCAP 29728
EXGRPCAP 1632
EXNMCAP 3712
ATTCAP 24928
ATTCHCAP 602
AVGRPCAP 10304
NOTCAP 128
NOTCHCAP 275
IDCAP 0
IDREFCAP 0
MAPCAP 0
LKSETCAP 0
LKNMCAP 0
```